ITING SLIP

FROM:

DATE: 29 June 62

FOR YOUR

	TO	INITIALS	DATE	SIGNATURE	INFORMATION	COMMENTS	APPROVAL	ACTION	SEE ME	FILE	RETURN	SEE REMARKS BELOW
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EXEC/DIR	1	[illegible]	3 Jul									
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SIO/NAVY												
SIO/AF												
SEC/AC												

Evaluation

Pls return to [illegible] w/comments

File O/D [illegible] 9 Aug 62

REMARKS:

I concur with [illegible] recommendation

[illegible]

TOP SECRET
(CLASSIFICATION)

21 JUN 1962

HS #

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This document contains information referring to Projects:

CORONA IDEALIST

TOP SECRET
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BYE-1534
20 June 1962

Copy 1

MEMORANDUM FOR: Executive Director, NPIC

THROUGH: Operations Officer, NPIC

SUBJECT: Film Evaluation Report

Problem: Expanding and improving upon the current technical film evaluation performed by the TID and expanding the technical background of the TID/TSB personnel conducting the evaluation.

Assumptions: That NPIC will continue to receive photographic inputs requiring technical evaluation, that the current evaluation should be expanded, and that the TID will continue to perform this evaluation.

Facts: The TID/TSB has been conducting technical film evaluations since the first "T" mission in 1956. The information contained in the film evaluations is used by many people, primarily operations personnel (DPD) and contract personnel (LMSC, ITEK, EK, HYCON). The data presented in each report has a direct application in the analysis of modifications and problems of current operational collection systems. It has for a number of years provided the operational personnel with the only formal technical statement of "how well we did" and "what were our problems."

Discussion: One of the most important and useful technical papers prepared and issued by the TID/TSB is the Technical Film Evaluation. Following each successful mission, and upon receipt of the original film negative, this evaluation is conducted and the report prepared.

The rapid analysis and timely issuance of the evaluation is of direct consequence to future operations. Thus a rapid completion of the evaluation report is essential. Data related to a malfunction of equipment must be analyzed and brought to the attention of operation and contractor personnel at the earliest possible date so that the malfunction can be corrected prior to subsequent missions. This is imperative to providing an improved product for the intelligence community. A key factor in the evaluation is the rapid delivery of the original negative to NPIC. Only from the original negative can a true and meaningful evaluation be prepared.

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The film evaluation is conducted by the senior personnel in the TSB. Through several years of experience and continued association with personnel from EK, LMSC, ITEK, DPD, HYCON, etc., TSB personnel have gained a wide background of technical knowledge. This background of technical knowledge that has been accumulated by TID personnel from the inception of a system through its stages of improvement is an irreplacable factor and tool in current and future evaluations. With the increasing complexity of current and new collection systems, it is felt that this experience should be supplemented by formal training, not only for the "old hands" but for some of the newer personnel.

Also, I think the time has come to expand the film evaluation into a Systems Analysis Report and include much more information (see Attachment 1, Proposed Systems Analysis Report).

Following each successful KH mission, representatives from LMSC, ITEK, DPD, and EK come to the TID/TSB for a critique of the mission. The over-all results of the operation are discussed at that time, the performance of various components evaluated, modifications and changes suggested and discussed. Film evaluation and analysis is the center of this critique because many performance factors can only be determined from film analysis.

In like manner, HYCON technical representatives visit NPIC periodically to discuss the results and evaluation of Talent missions for the purpose of system improvement. NPIC/TP-4/61 is an example of the results of TID evaluations and cooperative analysis of system performance.

Recommendations: 1. That the current film evaluation be expanded in scope to become a Systems Analysis Report, that it continue to be done by TID personnel, including the analysis of both the TSB and the TAB, that it be done on a priority basis, and that the report continue to be brief and to the point.

2. That TID be permitted to arrange with [redacted] of EK for a technical film seminar to be held at EK with the course content to be of a general nature as well as our product specifically. (See Attachment 2, Proposed Course: Technical Film Seminar.) (Note: Supervisory personnel of [redacted] processing plant have several times volunteered to give our people informal advanced training if we would like it.)

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3. That select personnel from TID be permitted to attend this course of instruction.

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4. That arrangements be made with either ITEK or LMSC for select personnel from TID to be given a complete technical check-out on the operation of KH-4 camera system. That these TID personnel then go to one or both of the above activities and spend a given amount of time with the company engineers, studying the system in detail. (Note: In addition to the current KH-4 system now in operation, I would like to see this done for each of our collection systems. Before a new system becomes operational, I would have TID personnel visit the contractor responsible for building the camera and go over with their engineers the operation of the cameras and observe them in test operation. To conduct an adequate evaluation and to perform other detailed system analysis requested, it is necessary that the personnel have first-hand knowledge of the system operation.)

5. That the importance of early delivery of the original negative to NPIC be re-emphasized.

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Chief, Technical Intelligence Division

Attachments:
1 - Proposed Systems Analysis Report
2 - Proposed Course: Technical Film Seminar

Distribution:
1 - Exec/Dir/NPIC
2 - Exec/Dir/NPIC
3 - NPIC/TID
4 - NPIC/TID
5 - NPIC/TID

NPIC:TID/SMJ:ea (20 Jun 62) 50X1

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Attachment 1

Listed below are subjects that should be included in a Systems Analysis Report. They are a combination of items that are now reported in our current film evaluation report, plus others that are discussed each time but not formally recorded.

Proposed Systems Analysis Report

A. Camera evaluation

1. Shutter operation
2. Exposure
3. Focus
4. Vacuum
5. Gas pressure
6. Gross IMC problems
7. Film tracking
8. Film metering
9. Average overlap
10. Vibration
11. Film slippage
12. Obstructions
13. Clock operation
14. Condition of fiducials
15. Camera light leaks
16. Sun flare
17. Static electricity
18. Condition of auxiliary equipment
19. Comparative resolution
20. Pressure streaks
21. Skiving
22. Camera induced creases
23. Camera induced tears
24. Reflections
25. Camera induced abrasions and scratches
26. Camera induced fogging
27. Average scale
28. Possible temperature effects

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B. Film evaluation

1. Average comparative density
2. Average comparative contrast
3. Average comparative graininess
4. Average comparative acuity
5. Fogging in processing
6. Gamma readings
7. Tearing due to processing and handling
8. Processing streaks
9. Roller pressure streaks
10. Scratches
11. Digs
12. Abrasions and rubs
13. Processing static electricity
14. Pinholes
15. Creases due to processing and handling
16. Cinch marks
17. Water marks
18. Improper drying
19. Splices
20. Blisters
21. Edge crimping
22. Foreign material on the film
23. Emulsion lifts
24. Fingerprints
25. Chemical stains
26. Uneven development
27. Titling problems

C. Technical evaluation

1. Processing information from Eastman Kodak
   a. Quality control data
   b. Machines used in processing
   c. Development information and history

2. Camera information
   a. Camera statistics from manufacturers
   b. Pitch and roll data from TAB
   c. Results of discussions with camera manufacturers after a successful mission

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3. Density study
   a. Macbeth readings correlated with sun angles
   b. Representative microdensitometric traces
   c. Graphical analysis

4. IMC studies
   a. Overlap readings
   b. Image quality analysis at beginning and end of every pass
   c. Image quality analysis at beginning and end of every mission
   d. Image quality analysis of multiple covered targets
   e. analysis of telemetry
   f. Microphotographs of representative areas

5. Grain studies
   a. Microphotographs of representative areas
   b. Emulsion statistics
   c. Microdensitometric traces of representative areas

6. Image quality
   a. Image quality meter readings

7. Resolution
   a. Ground resolution
   b. Lines per mm if possible, or numerical presentation

*8. Comparative analysis between missions and systems
   a. Graphical presentation
   b. Statistical presentation
   c. Historical presentation

* Will not be included in report, but will be retained for briefing purposes.

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Attachment 2

This is a preliminary outline of subject matter that could be included in the seminar conducted at Eastman Kodak.

Proposed Course: Technical Film Seminar

1. Sensitivity
2. Gradation
3. Film grain
4. Resolving power
5. Halation
6. Development
7. Composition of the developer
8. Methods and apparatus used in developing
9. Exposure
10. Desensitizing
11. Densitometry
12. Sensitometry
13. Film speeds
14. Fogging
15. Washing and drying
16. Negative care and storage
17. Fillers
18. Characteristic of transparent photographic supports
19. Defects caused by improper processing
20. Processing defects
21. Emulsion coating procedures